

What is claimed is:

1. An organic waste decomposition device, comprising:

a plate shaped base arm;

a cylindrical shell casing which is installed in the base frame and receive a

5 microorganism therein;

a shaft which is rotatably installed in a center portion of the shell casing;

a plurality of arm blades which are engaged to the shaft and are adapted
to agitate and crush the organic wastes;

a driving motor which is adapted to provide a rotational force to the shaft;

10 a ring blower which is adapted to supply air into the interior of the shell
casing;

an air pipe which is adapted to connect the ring blower and a lower portion
of the shell casing;

a pre-heater which is installed in the air pipe and is adapted to pre-heat
15 the air supplied into the interior of the shell casing;

a condenser which is adapted to liquefy a vapor discharged when an
organic waste is decomposed in the interior of the shell casing and to discharge
the liquefied vapor;

a steam pipe which is adapted to connect an upper portion of the shell
20 casing and the condenser; and

a control box which is adapted to control the operations of the driving
motor, ring blower and pre-heater.

2. The device of claim 1, wherein said arm blade includes:

a plurality of inner arm blades which each has an inner arm plate having an end portion engaged to the shaft, and an inner end plate engaged to the other end portion of the inner arm plate and including a center portion bent, and which
5 are installed at a regular interval with respect to an axial direction of the shaft; and

an outer arm blade which includes an outer arm plate having an end engaged to the shaft, an outer end plate engaged to the other end portion of the outer arm plate and having a center portion bent, and a sub-plate engaged to an upper portion of the outer arm plate at a certain slanted angle and which is
10 installed at both ends of the shaft.

3. The device of claim 1, further comprising:

a cover which is adapted to protect the shell casing.

15 4. An organic waste decomposition device, comprising:

a fermentation tank which includes an agitator capable of cutting an inputted organic waste and is adapted to decomposes the organic wastes using an added microorganism bacteria and discharges a carbonic acid gas including water;

20 a cooling tank which is adapted to cool a carbonic acid gas including water which occurs in the fermentation tank, separates the same into water and a carbonic acid gas and discharges through an outlet pipe;

a gas-liquid separator which is adapted to separate water and a carbonic acid gas flown in through the outlet pipe and to discharge the water through a first drainage pipe formed in a lower portion, and in which the carbonic acid gas returns to the fermentation tank through the exhaust pipe formed in an upper portion; and

5 a solid-liquid separator which is installed in the interior of the cooling tank and is adapted to filter a sludge from the water flown in through the first exhaust pipe and discharge through a second exhaust pipe connected to an outlet.

5. The device of claim 4, wherein said solid-liquid separator is formed of a
10 filter fabricating using a hollow fiber film.

6. The device of claim 4, wherein said gas-liquid separator includes an air inlet pipe adapted to aerate water flown in through the outlet pipe.

15 7. An automatic cleaning system of an organic waste decomposition device, comprising:

a hopper which is connected with a fermentation tank of an organic waste decomposition device using a suction line and is adapted to suck a remaining substance from the fermentation tank and store the same;

20 a twist screen which is adapted to filter a remaining substance supplied from the hopper and separates the same into a recyclable substance and a non-recyclable substance and discharge the same;

an eject hopper which is adapted to store a recyclable substance separated and discharged from the twist screen;

a cyclone which is connected with the eject hopper by a pressure line and is adapted to re-supply a recyclable substance supplied from the eject holler to a fermentation tank of an organic waste decomposition device and to return a part of the same to the hopper; and

a ring blower which is adapted to suck air from the hopper for thereby implementing a decreased pressure stare in the interior of the hopper and to generate a certain air pressure for transferring a recyclable substance from the eject hopper to the cyclone.

8. The system of claim 7, wherein said hopper includes an air supplier adapted to supply air for downwardly moving a remaining substance sucked in the hopper.

9. The system of claim 8, wherein said hopper includes a filter bag capable of eliminating a foreign substance from the air supplied through the air supplier.

10. The system of claim 7, wherein said hopper includes a rotary valve which is installed in a lower portion of the hopper and is adapted to adjust the amount of a remaining substance supplied to the twist screen.